

Machine Learning Assignment 2

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GitHub link: <https://github.com/AkhilaBoddu/ML-Assignment-2.git>

Question1

Use a python code to display the following star pattern using the for loop

Source Code:

No. of rows

```
rows = 5
```

```
for i in range(0, rows):
```

```
    # Nested loop for each column
```

```
    for j in range(0, i + 1):
```

```
        # Printing stars
```

```
        print("*", end=' ')
```

```
    # New line after each row
```

```
    print("\r")
```

```
rows = 4
```

```
for i in range(rows + 1, 0, -1):
```

```
    # Reversing the nested loop
```

```
    for j in range(0, i - 1):
```

```
        # Printing stars
```

```
        print("*", end=' ')
```

```
    print(" ")
```

Description:

In the above code Firstly I'm taking 5 rows and by using the nested loop for each and every column I'm adding stars to it. starting from the row 1 to row 5 in an increasing order and after each row I'm adding a new line. Then reversing the pattern by reversing the nested loop, starting from row 4 in a decreasing order to row 1.

```
Assignment-2.1.py X Assignment-2.2.py Assignment-2.3.py Assignment-2.4.py
Assignment-2.1.py > ...
1  #No. of rows
2  rows = 5
3  for i in range(0, rows):
4      #nested loop for each column
5      for j in range(0, i + 1):
6          #printing stars
7          print("*", end=' ')
8      #new line after each row
9      print("\n")
10 rows = 4
11 for i in range(rows + 1, 0, -1):
12     #reversing the nested loop
13     for j in range(0, i - 1):
14         #printing stars
15         print("*", end=' ')
16     print(" ")
17

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
PS C:\Users\akhia\OneDrive\Documents\ML\Assignments\Assignment-2> & 'C:\Users\akhia\OneDrive\Documents\ML\Assignments\Assignment-2\Assignment-2.1.py'
*
* *
* * *
* * * *
* * * * *
* * * *
* * *
* *
*
```

Question2

Use looping to output the elements from a provided list present at odd indexes.

```
my_list = [10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
```

Source Code:

```
my_list = [10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
```

#printing the above list

```
print("The list is :", my_list)
```

```
print("The elements in odd positions are : ")
```

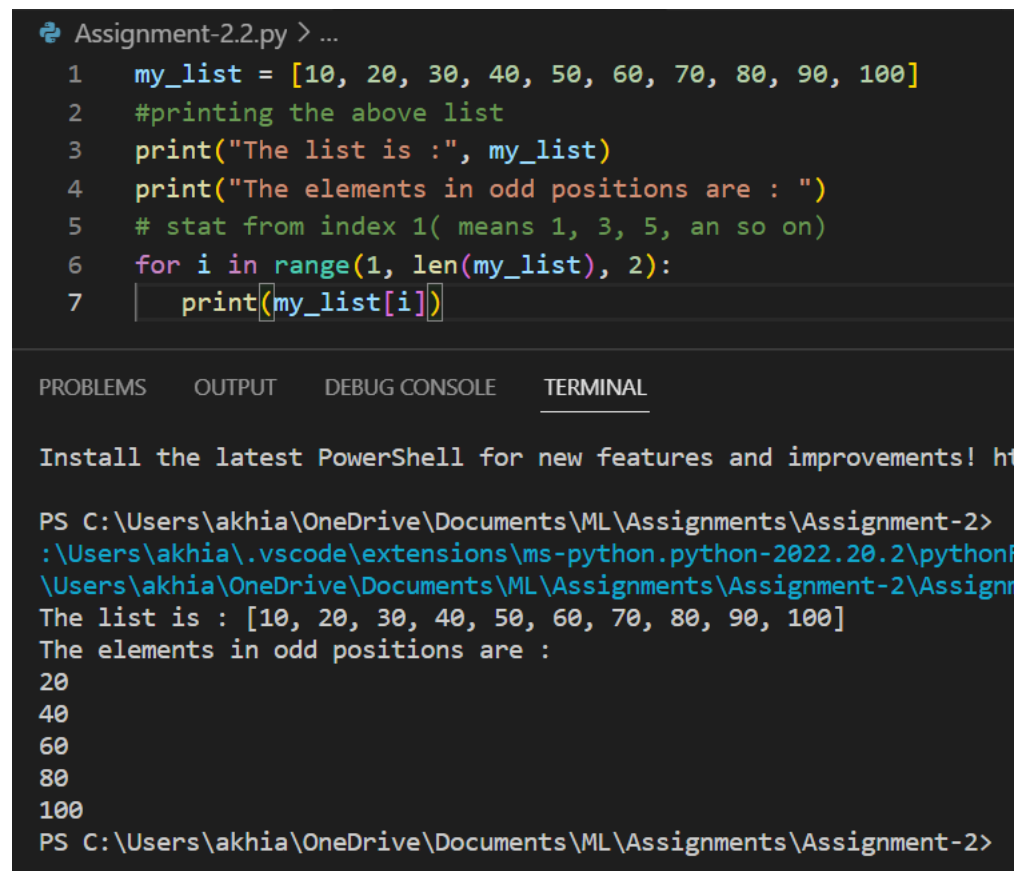
Using loop start from index 1(i.e., 1, 3, 5, 7, 9)

```
for i in range(1, len(my_list), 2):
```

```
    print(my_list[i])
```

Description:

In the above source code, First I'm just taking the random values. Using the for loop starting from the index 0. I'm picking the odd positions and printing the values (i.e., 20, 40, 60, 80, 100).



The screenshot shows a VS Code editor window with a file named 'Assignment-2.2.py'. The code in the editor is as follows:

```
1 my_list = [10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
2 #printing the above list
3 print("The list is :", my_list)
4 print("The elements in odd positions are : ")
5 # stat from index 1( means 1, 3, 5, an so on)
6 for i in range(1, len(my_list), 2):
7     print(my_list[i])
```

Below the editor, the 'TERMINAL' tab is active, showing the output of the script:

```
Install the latest PowerShell for new features and improvements! https://aka.ms/pscore6

PS C:\Users\akhia\OneDrive\Documents\ML\Assignments\Assignment-2> python Assignment-2.2.py
The list is : [10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
The elements in odd positions are :
20
40
60
80
100
PS C:\Users\akhia\OneDrive\Documents\ML\Assignments\Assignment-2>
```

Question3

Write a code that appends the type of elements from a given list.

Input

```
x = [23, 'Python', 23.98]
```

Expected output

```
[23, 'Python', 23.98]
```

```
[<class 'int'>, <class 'str'>, <class 'float'>]
```

Source Code:

```
x = [23, 'Python', 23.98]
```

```
# Printing x list
```

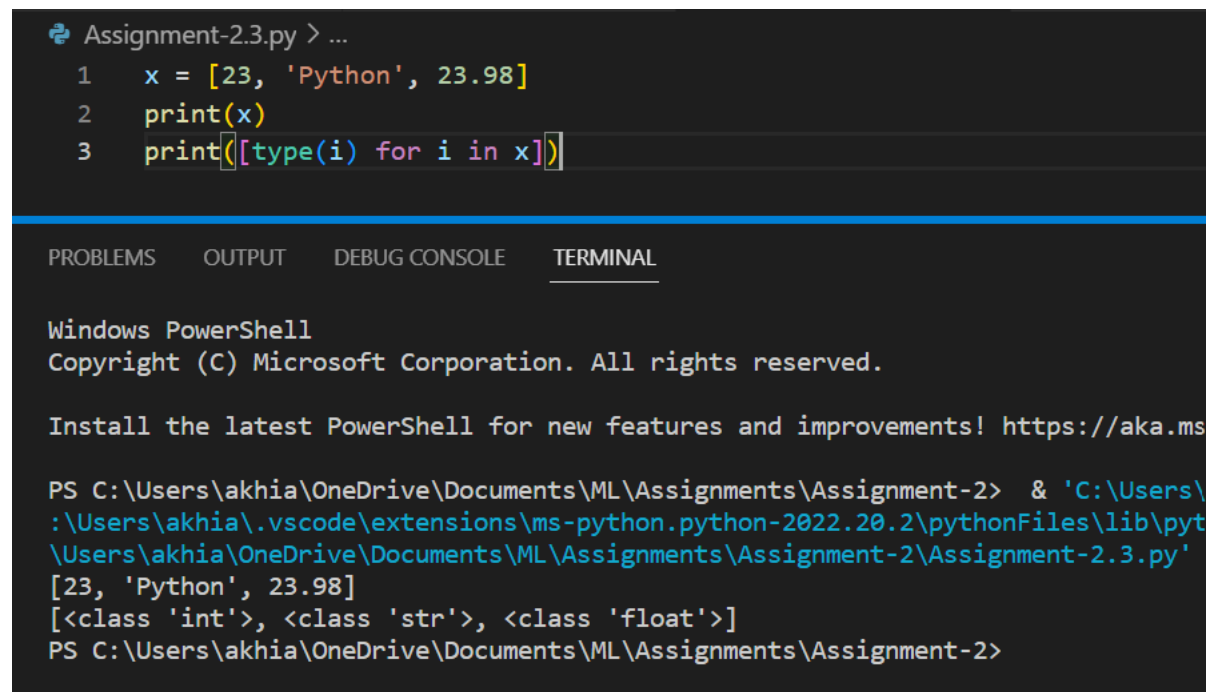
```
print(x)
```

```
# Printing all the type of the elements from the given x list
```

```
print([type(i) for i in x])
```

Description:

In the above source code, First I'm taking different datatype of elements and storing them in x list and printing them. Using type() function to define the element datatype and printing the datatype.



The screenshot shows a VS Code editor window with a file named 'Assignment-2.3.py'. The code in the editor is:

```
1 x = [23, 'Python', 23.98]
2 print(x)
3 print([type(i) for i in x])
```

Below the editor is a terminal window titled 'TERMINAL'. It shows the output of the script:

```
Windows PowerShell
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PS C:\Users\akhia\OneDrive\Documents\ML\Assignments\Assignment-2> & 'C:\Users\akhia\.vscode\extensions\ms-python.python-2022.20.2\pythonFiles\lib\python\Users\akhia\OneDrive\Documents\ML\Assignments\Assignment-2\Assignment-2.3.py'
[23, 'Python', 23.98]
[<class 'int'>, <class 'str'>, <class 'float'>]
PS C:\Users\akhia\OneDrive\Documents\ML\Assignments\Assignment-2>
```

Question4

Write a function that takes a list and returns a new list with unique items of the first list.

Sample List: [1,2,3,3,3,3,4,5]

Unique List: [1, 2, 3, 4, 5]

Source Code:

```
# Defining Unique_list()
```

```
def unique_list(l):  
    x = []  
    for a in l:  
        # If a not present in x then append a to x  
        if a not in x:  
            x.append(a)  
    # Return x elements  
    return x  
  
# Printing Sample list  
sample_list=[1,2,3,3,3,3,4,5]  
print("Sample List :", sample_list)  
  
# Printing Unique list of values from Sample list  
print("Unique List :",unique_list(sample_list))
```

Description:

In the above source code, First I'm defining unique_list() which will be used later then I'm taking some random values as a Sample list. Using for loop from a in l and checking if a is not in x, if so then appending a to x. Then using the unique_list() which I have defined at beginning to print the unique values from the sample list.

```
Assignment-2.4.py > unique_list
1 def unique_list(l):
2     x = []
3     for a in l:
4         if a not in x:
5             x.append(a)
6     return x
7 sample_list=[1,2,3,3,3,3,4,5]
8 print("Sample List :", sample_list)
9 print("Unique List :",unique_list(sample_list))

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Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/powershell

PS C:\Users\akhia\OneDrive\Documents\ML\Assignments\Assignment-2> & 'C:\Users\akhia\.vscode\extensions\ms-python.python-2022.20.2\pythonFiles\lib\python\python.exe' 'C:\Users\akhia\OneDrive\Documents\ML\Assignments\Assignment-2\Assignment-2.4.py'
Sample List : [1, 2, 3, 3, 3, 3, 4, 5]
Unique List : [1, 2, 3, 4, 5]
PS C:\Users\akhia\OneDrive\Documents\ML\Assignments\Assignment-2>
```

Question5

Write a function that accepts a string and calculate the number of upper-case letters and lower-case letters.

Input String: 'The quick Brow Fox'

Expected Output:

No. of Upper-case characters: 3

No. of Lower-case Characters: 12

Source Code:

Defining String_test()

```
def string_test(a):
    b={"UPPER_CASE":0, "LOWER_CASE":0}
    for c in a:
```

If c is Uppercase then count

```
if c.isupper():
```

```
    b["UPPER_CASE"]+=1
```

Else if c is Lowercase then count otherwise pass

```
elif c.islower():
```

```
    b["LOWER_CASE"]+=1
```

```
else:
```

```
    pass
```

Print the input string

```
print ("Input String : ", a)
```

Print the count of Uppercase

```
print ("No. of Upper-case characters : ", b["UPPER_CASE"])
```

Print the count of lowercase

```
print ("No. of Lower-case Characters : ", b["LOWER_CASE"])
```

```
string_test('The quick Brow Fox')
```

Description:

In the above source code, First I'm defining string_test() which will be used later. Using for loop from c in a and checking if c is uppercase or lowercase otherwise pass. Then using the string_test() which I have defined at beginning to print count of uppercase and lowercase from the given string.

Assignment-2.5.py > ...

```
1  def string_test(a):
2      b={"UPPER_CASE":0, "LOWER_CASE":0}
3      for c in a:
4          if c.isupper():
5              b["UPPER_CASE"]+=1
6          elif c.islower():
7              b["LOWER_CASE"]+=1
8          else:
9              pass
10     print ("Input String : ", a)
11     print ("No. of Upper-case characters : ", b["UPPER_CASE"])
12     print ("No. of Lower-case Characters : ", b["LOWER_CASE"])
13
14     string_test('The quick Brow Fox')
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
\Users\akhia\OneDrive\Documents\ML\Assignments\Assignment-2\Assignment-2.4.py'
Sample List : [1, 2, 3, 3, 3, 3, 4, 5]
Unique List : [1, 2, 3, 4, 5]
PS C:\Users\akhia\OneDrive\Documents\ML\Assignments\Assignment-2> 
```